

CURRICULUM VITAE

(January 2018)

NIKOLAI A. SHEVCHUK, Ph.D.

EDUCATION

- 1999 Master of Science in Biology, concentration in Molecular Biology (a 5-year program, graduated with honors), Novosibirsk State University, Russia. The thesis title: "Blood nucleic acids: development of a quantitative immunoassay and a study of serum levels."
- 2006 Ph.D. in Molecular and Cellular Oncology, the George Washington University, Washington, DC, USA. The thesis title: "Inhibition of ganglioside GM3 synthase: effects on ganglioside metabolism and epidermal growth factor receptor signaling."

POSITIONS HELD

- 1997-1999 Research Assistant, Novosibirsk Institute of Bioorganic Chemistry (now called Institute of Chemical Biology and Fundamental Medicine), Russia
- 2001-2006 Research Assistant, Center for Cancer and Immunology Research, Children's Research Institute, Washington, DC, USA.
- 2006-2007 Postdoctoral Fellow, the Department of Radiation Oncology, Virginia Commonwealth University, Richmond, VA, USA.
- 2008 Self-employed postdoctoral work (lived off of inheritance)
- 2009 R&D Scientist, Vector-Best, Inc., Novosibirsk, Russia
- 2010-2012 Senior Scientist, Biotest Co., Ltd., Novosibirsk, Russia
- 2013- Leading Scientist (part-time), Institute of Molecular Biology and Biophysics, Novosibirsk, Russia
- 2013- Self-employed biomedical editor (full-time)

AWARDS AND HONORS

- 1996-1997 Scholarship sponsored by SibEnzyme Company, Novosibirsk, Russia
- 1998 co-recipient of INTAS grant 94-3214 "Development of Synthetic Gene Transfer Vectors for Gene Therapy", ~5% effort; Principal Investigator: V.V. Vlassov
- 1998 George Soros Scholarship, sponsored by Open Society Institute
- 1999-2001 Presidential Merit Fellowship in Biomedical Sciences, the George Washington University, Washington, DC, USA.
- 2001-2006 Children's National Medical Center Fellowship, the George Washington University, Washington, DC, USA.
- 2011 \$160,000 (5 million rubles), participated in obtaining (one of three co-investigators) government contract of the Russian Education and Science Ministry #16.512.11.2214 (June 2011 to November 2011) titled

2012-2014 “The development of an analytical immunochromatographic test kit for one-step quantitation of marker proteins of myocardial infarction, h-FABP and troponin I in venous whole blood.” \$1.4 million (45 million rubles), received (as a principal investigator) government contract of the Russian Ministry of Industry and Commerce #12411.1008799.13.100 (June 2012 to November 2014) titled “The development and organization of the manufacture of an immunochromatographic rapid test for tick-borne encephalitis virus (TBEV) in ticks.”

BIBLIOGRAPHY: PEER-REVIEWED ARTICLES

- Laktionov P.P., Shevchuk N.A., Naumov V.A., Zhevachevskii N.G., Rykova E.I., and Vlassov V.V. Development of a two-site immunoassay using polyclonal antibodies for determination of lactoferrin in human blood. (1999) *Vopr Med Khim*, **45**(2):170-177.
- Shevchuk N.A. Time-resolved immunofluorimetric assay for DNA and DNA level in human serum. (2001) *Vopr Med Khim*, **47**(4):439-448.
- Shevchuk N.A. and Allard M.W. Sources of incongruence among mammalian mitochondrial sequences: COII, COIII, and ND6 genes are main contributors. (2001) *Mol Phylogenet Evol*, **21**(1): 43-54.
- Shevchuk N.A., Bryksin A.V., Nusinovich Y.A., Cabello F.C., Sutherland M., and Ladisch S. Construction of long DNA molecules using long PCR-based fusion of several fragments simultaneously. (2004) *Nuc Acids Res*, **32**(2):e19.
- Ismailov R.M., Shevchuk N.A., Schwerha J., Keller L., and Khusanov H. Blunt trauma to large vessels: a mathematical study. (2004) *Biomed Eng Online*, **3**(1):14.
- Ismailov R.M., Shevchuk N.A., and Khusanov H. Mathematical model describing erythrocyte sedimentation rate. Implications for blood viscosity changes in traumatic shock and crush syndrome. (2005) *Biomed Eng Online*, **4**(1):24.
- Shevchuk N.A., Manela J., Nusinovich Y.A., and Ladisch S. Stable transfection of DAOY cells with a GM3 synthase antisense construct and transient reduction in ganglioside content. (2006) *Biomed Khim*, **52**(3):245-257.
- Shevchuk N.A., Hathout Y., Epifano O., Su Y., Liu Y., Sutherland M., and Ladisch S. Alteration of ganglioside synthesis by GM3 synthase knockout in murine embryonic fibroblasts. (2007) *Biochim Biophys Acta*, **1771**(9):1226-1234.
- Shevchuk N.A. Possible use of repeated cold stress for reducing fatigue in chronic fatigue syndrome: a hypothesis. (2007) *Behav Brain Funct*, **3**(1):55.
- Shevchuk N.A. and Radoja S. Possible stimulation of anti-tumor immunity using repeated cold stress: a hypothesis. (2007) *Infect Agents Cancer*, **2**(1):20.
- Shevchuk N.A. Hydrotherapy as a possible neuroleptic and sedative treatment. (2008) *Med Hypotheses*, **70**(2):230-238.
- Shevchuk N.A. Adapted cold shower as a potential treatment for depression. (2008) *Med Hypotheses*, **70**(5):995-1001.
- Shevchuk N.A. Editorial: Food-borne parasites and the relevant therapeutic targets. (2010) *Infect Disord Drug Targets*, **10**(5):312.

BIBLIOGRAPHY: PEER-REVIEWED BOOK CHAPTERS

Shevchuk N.A. and Bryksin A.V. "Construction of long DNA molecules from multiple fragments using PCR" in ***PCR (Methods Express)***. Edited by Simon Hughes and Adrian Moody, 2007, Scion Publishing LLC, 348 pages.

Shevchuk N.A. "The anti-fatigue effect of moderate cooling: the evidence, physiological mechanisms and possible implications for the prevention or treatment of CFS" in ***Chronic Fatigue Syndrome: Symptoms, Causes and Prevention***. Edited by Edita Svoboda and Kristof Zelenjcik; 2010; Nova Science Publishers, Inc., New York, pp. 57-88.

Shevchuk N.A. "Nonpharmacological inhibition of cerebral dopaminergic activity may be an option for medication-resistant hallucinations" in ***Hallucinations: Types, Stages and Treatments***. Edited by Meredith S. Payne; 2011; Nova Science Publishers, Inc., New York, pp. 147-162.

EDITORIAL REVIEW SERVICES

FEMS Microbiology Reviews (August 2007):

manuscript "Chemical gene synthesis: progress, strategies, methods, design, error correction and application" by Xiong A.S., Peng R.H., Cheng Z.M., and Yao Q.H.

Medical Science Monitor (March 2008):

manuscript "Chronic urticaria and thyroid autoimmunity in an area with mild-to-moderate iodine deficiency: a longitudinal evaluation in a single center," the names of the authors were not disclosed.

Scandinavian Journal of Medicine & Science in Sports (April 2009):

manuscript "Hormonal responses to a repeated bout of maximal exercise as early marker for overreaching" by Brink M.S., Schmikli S.L., Zwerver J., Visscher C., and Lemmink K.A.

Journal of the American Society for Horticultural Science (November 2009):

manuscript "Improved site-directed mutagenesis for the analysis of gene function in *fusarium oxysporum* f. sp. *cubense*" by Li C., Chen S., Sun Q., and Yi G.

Nucleic Acids Research (December 2009):

manuscript "Pairwise selection assembly for sequence-independent construction of long-length DNA" by Blake W.J., Chapman B.A., Zindal A., Lee M.E., Lippow S.M., and Baynes B.M.

Nucleic Acids Research (January 2010):

manuscript "STRU-cloning: re-inventing a punctured wheel" by Bellini D., Fordham-Skelton A.P., and Papiz M.Z.

Medical Science Monitor (March 2010):

manuscript “No association between schizophrenia and rs27388 of the MEGF10 gene in Chinese case-control sample”; the names of the authors were not disclosed.

Infectious Disorders – Drug Targets (February 2009 – June 2010):

Guest Editor of the special issue “Food-borne parasites and the relevant antiparasitic agents.”

Medical Case Studies (November 2012):

manuscript “How dinosaurs defeated atherosclerosis and dominated the Earth” by Coleman L.S.

Vaccine (January 2013):

manuscript “Expression of *Clostridium perfringens* epsilon-beta fusion toxin gene in *E. coli* and its immunologic studies in mouse vaccine” by Langroudi R.P., Shamsara M., and Aghaiypour K.

Vaccine (March 2014):

manuscript “Differential loss of humoral immunity against measles, mumps, rubella and varicella-zoster virus in children treated for cancer” by Bochennek K., Allwinn R., Langer R., Becker M., Keppler O.T., Klingebiel T., and Lehrnbecher T.

Vaccine (November 2015):

manuscript “Xenogeneic cell-based vaccine therapy for colorectal cancer: association of clinical effects with vaccine-induced immune responses” by Seledtsova G.V., Shishkov A.A., Kaschenko E.A., and Seledtsov V.I.

Applied Biochemistry and Biotechnology (September 2016):

manuscript “The application of fusion PCR to amplify the full-length ORF sequences of long-length NuMA” by Wu J., Zhang Q., Lu G., and Zhang H.

Indian Journal of Biochemistry and Biophysics (October 2016):

manuscript “Method of multipoint mutagenesis based on improved overlap extension PCR and homologous recombination”; the names of the authors were not disclosed.

EDITING AND CONSULTING SERVICES FOR AUTHORS

As of January 2018, Nikolai Shevchuk has edited ~2100 manuscripts of research articles (in English) for authors from various countries, mostly South Korea, Japan, China, Taiwan, Russia, and Brazil; 17 grant proposals (in English); and ~200 smaller academic texts. He also translated several dozen scientific manuscripts from Russian to English. Some examples of published articles are shown below (note that the final published version of a scientific article often does not match the original edited manuscript).

- Obukhova LA, Skulachev VP, and Kolosova NG. [Mitochondria-targeted antioxidant SkQ1 inhibits age-dependent involution of the thymus in normal and senescence-prone rats.](#) *Aging (Albany NY)*; 2009, **1**(4):389-401.

- Glushkov SA, Bragin AG, and Dymshits GM. [Decontamination of polymerase chain reaction reagents using DEAE-cellulose.](#) *Anal Biochem*; 2009, **393**(1):135-137.
- Silva CV and Costa-Cruz JM. [A glance at Taenia saginata infection, diagnosis, vaccine, biological control and treatment.](#) *Infect Disord Drug Targets*; 2010, **10**(5):313-321.
- Sawanyawisuth K and Sawanyawisuth K. [Drug target in eosinophilic meningitis caused by Angiostrongylus cantonensis.](#) *Infect Disord Drug Targets*; 2010, **10**(5):322-328.
- Escobedo AA, Almirall P, Robertson LJ, Franco RM, Hanevik K, Morch K, and Cimerman S. [Giardiasis: the ever-present threat of a neglected disease.](#) *Infect Disord Drug Targets*; 2010, **10**(5):329-348.
- Hagel I and Giusti T. [Ascaris lumbricoides: an overview of therapeutic targets.](#) *Infect Disord Drug Targets*; 2010, **10**(5):349-367.
- Helmy MM. [Cyclospora cayetanensis: a review, focusing on some of the remaining questions about cyclosporiasis.](#) *Infect Disord Drug Targets*; 2010, **10**(5):368-375.
- Mitreva M and Jasmer DP. [Trichinella spiralis: genomic application to control a zoonotic nematode.](#) *Infect Disord Drug Targets*; 2010, **10**(5):376-384.
- Mordvinov VA and Furman DP. [The Digenea parasite Opisthorchis felineus: a target for the discovery and development of novel drugs.](#) *Infect Disord Drug Targets*; 2010, **10**(5):385-401.
- Schuster RK. [Opisthorchiidosis--a review.](#) *Infect Disord Drug Targets*; 2010, **10**(5):402-415.
- Pakharukova M, Smetanina M, Kaledin V, Obut T, and Merkulova T. [The increased CAR-dependent metabolism of thyroid hormones in mice with high cancer susceptibility.](#) *Life Sci*; 2010, **87**(13-14):439-444.
- Gelin A, Redrejo-Rodriguez M, Laval J, Fedorova OS, Sapparbaev M, and Ishchenko AA. [Genetic and biochemical characterization of human AP endonuclease 1 mutants deficient in nucleotide incision repair activity.](#) *PLoS One*; 2010, **5**(8):e12241.
- Stefanova NA, Fursova AZh, and Kolosova NG. [Behavioral effects induced by mitochondria-targeted antioxidant SkQ1 in Wistar and senescence-accelerated OXYS rats.](#) *J Alzheimers Dis*; 2010, **21**(2):479-491.
- Vine C. [The Case of Billy B.](#) Createspace (January 22, 2010), 286 pages.
- Williams D. [101 Powerful Small Business Marketing Tips: Proven Ways to Crush the Competition and Produce Profits Even In A Bad Economy.](#) Createspace (February 18, 2010), 136 pages.
- Coker M. [The 10 Minute Public Relations Checklist - How to Earn the PR You Deserve.](#) Smashwords Press (May 7, 2011), 30 pages.
- Markovets AM, Fursova AZ, and Kolosova NG. [Therapeutic action of the mitochondria-targeted antioxidant SkQ1 on retinopathy in OXYS rats linked with improvement of VEGF and PEDF gene expression.](#) *PLoS One*; 2011, **6**(7):e21682.

- Perepechaeva M, Kolosova N, and Grishanova A. [Molecular mechanisms of cold-induced CYP1A activation in rat liver microsomes.](#) *J Physiol Biochem*; 2011, **67**(4):499-510.
- Markovets AM, Saprunova VB, Zhdankina AA, Fursova AZh, Bakeeva LE, and Kolosova NG. [Alterations of retinal pigment epithelium cause AMD-like retinopathy in senescence-accelerated OXYS rats.](#) *Aging (Albany NY)*; 2011, **3**(1):44-54.
- Rykova VI, Leberfarb EY, Stefanova NA, Shevelev OB, Dymshits GM, and Kolosova NG. [Brain proteoglycans in postnatal development and during behavior decline in senescence-accelerated OXYS rats.](#) *Adv Gerontol*; 2011, **24**(2):234-243.
- Muraleva NA, Ofitserov EN, Tikhonov VP, and Kolosova NG. [Efficacy of glucosamine alendronate alone & in combination with dihydroquercetin for treatment of osteoporosis in animal model.](#) *Indian J Med Res*; 2012, **135**:221-227.
- Pakharukova MY, Ershov NI, Vorontsova EV, Katokhin AV, Merkulova TI, and Mordvinov VA. [Cytochrome P450 in fluke *Opisthorchis felinus*: identification and characterization.](#) *Mol Biochem Parasitol*; 2012, **181**(2):190-194.
- Korbolina EE, Kozhevnikova OS, Stefanova NA, and Kolosova NG. [Quantitative trait loci on chromosome 1 for cataract and AMD-like retinopathy in senescence-accelerated OXYS rats.](#) *Aging (Albany NY)*; 2012, **4**(1):49-59.
- Kozhevnikova OS, Korbolina EE, Ershov NI, and Kolosova NG. [Rat retinal transcriptome: Effects of aging and AMD-like retinopathy.](#) *Cell Cycle*; 2013, **12**(11):1745-1761.
- **Free PDF** Stefanova NA, Kozhevnikova OS, Vitovtov AO, Maksimova KY, Logvinov SV, Rudnitskaya EA, Korbolina EE, Muraleva NA, Kolosova NG. [Senescence-accelerated OXYS rats: a model of age-related cognitive decline with relevance to abnormalities in Alzheimer disease.](#) *Cell Cycle*; 2014, **13**(6):898-909.
- Telegina DV, Korbolina EE, Ershov NI, Kolosova NG, Kozhevnikova OS. [Identification of functional networks associated with cell death in the retina of OXYS rats during the development of retinopathy.](#) *Cell Cycle*; 2015, **14**(22):3544-3556.
- **Free PDF** Stefanova NA, Muraleva NA, Korbolina EE, Kiseleva E, Maksimova KY, Kolosova NG. [Amyloid accumulation is a late event in sporadic Alzheimer's disease-like pathology in nontransgenic rats.](#) *Oncotarget*; 2015, **6**(3):1396-1413.
- Rudnitskaya EA, Muraleva NA, Maksimova KY, Kiseleva E, Kolosova NG, Stefanova NA. [Melatonin attenuates memory impairment, amyloid- \$\beta\$ accumulation, and neurodegeneration in a rat model of sporadic Alzheimer's disease.](#) *J Alzheimers Dis*; 2015, **47**(1):103-116.
- **Free PDF** Ponomarenko M, Rasskazov D, Arkova O, Ponomarenko P, Suslov V, Savinkova L, Kolchanov N. [How to use SNP TATA Comparator to find a significant change in gene expression caused by the regulatory SNP of this gene's promoter via a change in affinity of the TATA-binding protein for this promoter.](#) *Biomed Res Int*; 2015, **2015**:359835.

- Rudnitskaya EA, Maksimova KY, Muraleva NA, Logvinov SV, Yanshole LV, Kolosova NG, Stefanova NA. [Beneficial effects of melatonin in a rat model of sporadic Alzheimer's disease.](#) *Biogerontology*; 2015, **16**(3):303-316.
- Stoyanov ES, Gomes Gdos P. [tert-Butyl carbocation in condensed phases: stabilization via hyperconjugation, polarization, and hydrogen bonding.](#) *J Phys Chem A*; 2015, **119**(32):8619-8629.
- **Free PDF** Arkova OV, Ponomarenko MP, Rasskazov DA, Drachkova IA, Arshinova TV, Ponomarenko PM, Savinkova LK, Kolchanov NA. [Obesity-related known and candidate SNP markers can significantly change affinity of TATA-binding protein for human gene promoters.](#) *BMC Genomics*; 2015,**16**(Suppl 13):S5.
- Stefanova NA, Maksimova KY, Kiseleva E, Rudnitskaya EA, Muraleva NA, Kolosova NG. [Melatonin attenuates impairments of structural hippocampal neuroplasticity in OXYS rats during active progression of Alzheimer's disease-like pathology.](#) *J Pineal Res*; 2015,**59**(2):163-177.
- Stoyanov ES, Malykhin SE. [Carbon monoxide protonation in condensed phases and bonding to surface superacidic Brønsted centers.](#) *Phys Chem Chem Phys*; 2016, **18**(6):4871-4880.
- Miroshnikova AD, Kuznetsova AA, Vorobjev YN, Kuznetsov NA, Fedorova OS. [Effects of mono- and divalent metal ions on DNA binding and catalysis of human apurinic/apyrimidinic endonuclease 1.](#) *Mol Biosyst*; 2016, doi: 10.1039/C6MB00128A.
- Stoyanov ES. [The salts of chloronium ions R-Cl⁺-R \(R = CH₃ or CH₂Cl\): formation, thermal stability, and interaction with chloromethanes.](#) *Phys Chem Chem Phys*; 2016, doi: 10.1039/C6CP00946H.

SKILLS

Copyediting and editing of English-language texts; writing of scientific articles and reports for clinical trials, government contracts, and scientific grants; presentations at conferences and seminars; organization of clinical trials and development of clinical study protocols for medical devices; analysis of statistical power for clinical and animal studies (using PASS software); cloning of DNA using restriction enzymes and ligases; DNA sequencing; site-directed mutagenesis; Southern blot; various PCR applications, including construction of long recombinant DNA molecules, e.g. gene targeting vectors; development of diagnostic PCR tests (based on real-time PCR); various methods of transfection of DNA into mammalian cells; karyotyping and genotyping of cells; analysis of nucleic acids and proteins using Vector NTI Advance software; phylogenetic analysis of DNA sequences; development of immunochromatographic (lateral flow) diagnostic tests; preparation of colloid gold particles (30-40 nm); cell culture and derivation of primary cell strains from mice; FACS analysis; work with immunosuppressed mouse models; biochemical analysis of gangliosides, glycolipid extraction and purification; HPTLC; analysis of MALDI-TOF data; protein sequencing using nanoESI mass spectrometry (experience with a QStar XL instrument); pulsed-field electrophoresis; several years of experience with GM3 synthase gene knockout in human somatic cells using homologous recombination and related

techniques; Western blot; immunoprecipitation; isolation of cellular components using a sucrose gradient; production of rabbit polyclonal antibodies; ELISA; gel-filtration and affinity chromatography of proteins; LaTeX; programming languages: HTML/CSS, Regular Expressions, C++, and Visual C++; software: Sigil, KindleGen, Notepad++, and TexMaker.

CONFERENCES

Shevchuk N.A.: A two-site immunoassay for lactoferrin and determination of lactoferrin levels in human blood. The (Annual) International Scientific Student Conference "The Student and the Progress of Science and Technology", Novosibirsk State University, Novosibirsk, Russia, April of 1998 — oral presentation.

Shevchuk N.A. and Ladisch S.: Gene knockout in human cells: application to tumor cell gangliosides. The 9th Annual GWU Health Sciences Research Day Symposium, the George Washington University School of Medicine and Health Sciences, Washington, DC, USA, April 2, 2004 — poster session.

Shevchuk N.A., Bryksin A.V., and Ladisch S.: Rapid construction of long DNA molecules from multiple fragments for vaccine development and assembly of small genomes. The 3rd Annual Conference on Vaccines, All Things Considered. Alexandria, VA, USA, November 3-4, 2005 — poster session.

Shevchuk N.A., Weiss M., and Ladisch S.: Modulation of EGF receptor signaling by cellular gangliosides. 11th Annual GWU Health Sciences Research Day Symposium, the George Washington University School of Medicine and Health Sciences, Washington, DC, USA, March 31, 2006 — poster session.

Bryksin A.V., Shevchuk N.A., and Vlassov V.V.: Rapid construction of long DNA molecules using PCR fusion of multiple fragments simultaneously. Annual Conference on Basic Science for Biotechnology and Medicine; Novosibirsk, Russia. September 3-7, 2006.

National conference "Cardiology 2010: New developments in diagnostics and treatment." October 28, 2010, Irkutsk, Russia. *CardioFABP: a state-of-the-art solution for the early diagnosis of acute myocardial infarction* — commercial poster session.

Chelobanov B.P., Shevchuk N.A., Afinogenova G.N., Voevoda M.I., and Veliev S.N. Anniversary National Practical-Scientific Conference with international participation "From basic research — to innovative medical technologies," September 16-18, 2010, St. Petersburg, Russia. *Practical utility of the rapid test for fatty acid-binding protein in the diagnosis of acute coronary syndrome*.

Chelobanov B.P., Shevchuk N.A., Afinogenova G.N., and Veliev S.N. II International Congress "Cardiology at a crossroads of sciences" joint with V International Symposium on Echocardiology and Vascular Ultrasonics, and XVIII Annual Scientific Practical Conference "Topical Questions in Cardiology". Tyumen, Russia, 2011, p. 310 in

the publication. *Diagnostic characteristics of a rapid test for fatty acid-binding protein in acute myocardial infarction.*

PATENTS

Russian Federation patent # 97114709: "A method of lactoferrin isolation from human milk" (1998) Laktionov P.P., Shevchuk N.A., Rykova E.Yu., and Vlassov V.V.

Russian Federation patent # 113847 for a system: "Combined immunochromatographic test-system for quantification of protein markers of myocardial infarction H-FABP and troponin I in whole blood" October 5 (2011) Veliev S.N., Chelobanov B.P., Shevchuk N.A., Afinogenova G.N., and Cheshenko I.O.